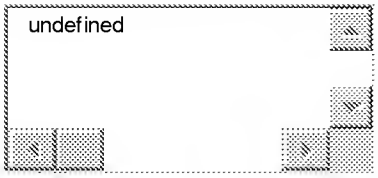

The invention relates to a new Bitumenemulsion to the production of cold-mix-good or coatings for roads or paths with a content at bitumens and a flux component as well as if necessary addition materials, adhesive agents, emulsifiers, Sikkativen, elastomers, cross-linking-promoting cloths and such a thing, whereby the flux component is a vegetable oil such as rapeseed oils or a rapeseel oil derivative derived of it. Further the invention a cold-mix-good and a method concerns to the surface treatment of roads, paths, dams and such a thing.

For the surface treatment of roads, paths, dams etc. become since long time flux bitumen used. These consist usually of bitumens as main content material and the so called flux means. These flux means were always so far petroleum products, like z. B. Gasoline, kerosene, petroleum, gas oil, fuel oils of various boiling ranges, spindle and lubricating oil parliamentary groups and such a thing.

These flux oils from petroleum products, specified above, have the disadvantage of the not optimal environmental compatibility. By rain water the mineral oils can become into the ground supported there and lead an impairment of soil lives or ground water. The mineral flux oils cause disturbing steam, which impairs the build-implementing crew with jobs of the flux bitumen and which with pollutants load air. Further the petroleum products with low flashpoints can represent a safety-relevant risk.

Further it became already known to use for hot bitumen as flux means animal and/or vegetable greases or oils bottom those also the rapeseed oil mentioned is. The use of such oils for Bitumenemulsionen became however not known.

Object of the instant invention is the provision of a flux bitumen or a corresponding Bitumenemulsion, which exhibit an improved environmental compatibility and which disadvantages mentioned avoid.

The invention is characterised in that 50 to 99 mass % bitumens and as flux component 1 to 50 mass % vegetable oil such as rapeseed oils or rapeseel oil derivative like its fatty acid portion or fatty acid mixture, a transesterification product such as rapeseel oil methyl esters or alkyd resin-like derivatives of rapeseed oil provided is, and this binder phase in an aqueous phase is emulsified.

Other features of the invention are to be taken from the claims and the subsequent description.

Insertable the according to invention bitumen basis consists of distillation bitumen of different softness degrees, or of polymere-modified bitumens. These bitumens correspond to the state of the art and are depending upon use and availability by the skilled person to be selected.

For example to the subsequent ÖNormen one refers: B 3507 flux bitumen for road construction,
B 3610 Erdölbitumen for road construction purposes,
B 3613 elastomeric-modified bitumens for road construction.

The flux oil basis consisted in accordance with prior state of the art of petroleum products, z. B. Test gasoline, kerosene, petroleum, gas oil, fuel oils of various boiling ranges, spindle and lubricating oil parliamentary groups. A typical composition flux bitumen as bonding agents for surface treatments is z. B. the subsequent:
< tb> < TABLE> Columns=2>
< tb> Road construction bitumen,
< tb> Flux oil or flux oil mixture, z. B. Kerosene, gas oil, Heizöl< SEP> 3 to 20 mass %
< tb> Adhesive agent or bonding agent mixture on fat amine basis of the type Alkylamidoamin or Imidazolin< SEP> 0,1 to 5 mass %
< tb> < /TABLE>

In accordance with invention flux oils on the basis of natural greases and oils become, preferably vegetable oils and/or. Oil mixtures, z. B. Rapeseed oil, as well as from this derived products, for example fatty acids and fatty acid mixtures or transesterification products of oils, z. B. Rapeseel oil methyl ester or alkyd resin-like derivatives used. For special applications is the use of oils with an high content of multiple unsaturated fatty acids (z. B. Linol

or linolenic acid), for example Holzöl, Hanföl, soya oil, tall oil or linseed oil advisable, or a combination of these ?drying oils? with rapeseed oils.

Depending upon targeted application the preparing according to invention other cloths, who are partially already state of the art, become added. There is this detention-improving additions (fatty amines, silicon-organic connections), emulsify-effective cloths, creepimproving additions, Sikkative or other cross-linking-promoting cloths, various bitumen-compatible plastics, preferably elastomers such as natural rubber, styrene butadiene rubber, polychloroprene and other one. By these additions on the one hand improved detention behavior on rock becomes, improved behavior of the bonding agent in the cold (decrease of the brittleness of bitumens) as well as the secondary hardening of the weichgefluxten bitumen basis achieved.

In accordance with present state of the technology flux oils based on mineral oil are only by distillative of procedures in the layer to after-hard after the processing the bonding agent for the desired functional condition which leads to air pollution by Kohlenwasserstoffemissionen and avoided is to become.

Embodiments in accordance with invention

< tb> < TABLE> Columns=2> A. Flux bitumen as bonding agents for surface treatments
< tb> Road construction bitumen, penetration 25 to 200 (1/10 mm) < SEP> 75 to 97 mass %
< tb> Flux component rapeseed oil (Rüböl) < SEP> 2 to 25 mass %
< tb> Adhesive agent or bonding agent mixture on fat-amine or silicon-organic Basis< SEP> 0,1 to 3 mass %
< tb> < /TABLE>

This bonding agent can become also as emulsion in accordance with embodiment C the surface treatment and for the dredging building method of roads or paths used.
< tb> < TABLE> Columns=2> B. Flux bitumen in accordance with example A in polymere-modified embodiment
< tb> Polymer-modified road construction bitumen, z. B. in the penetration 60 to 150 (1/10 mm) < SEP> 85 to 95 mass %
< tb> Flux component rapeseed oil (Rüböl) < SEP> 4 to 15 mass %
< tb> Adhesive agent or bonding agent mixture on fat-amine or silicon-organic Basis< SEP> 0,1 to 3 mass %
< tb> < /TABLE>
< tb> < TABLE> Columns=2> C.Fluxbitumen or flux bitumen emulsion as bonding agents for the cold mixing good production
< tb> Road construction bitumen, penetration 150 to 250 (1/10 mm) < SEP> 50 to 85 mass %
< tb> Flux component Rapsöl< SEP> 10 to 40 mass %
< tb> Flux component Leinöl< SEP> 0 to 30 mass %
< tb> Adhesive agent on Fettaminbasis< SEP> 0 to 5 mass %
< tb> < /TABLE>

In case of the flux bitumen emulsion 50 to 70 becomes percent of this binder phase in an aqueous phase anionic Seifenlösung (preferably on Tallölbasis) or in an aqueous phase cationic fat amine solution (preferably on tallow fat propylenediamine basis) emulsifies.

Application examples

1. Manufacture a surface treatment

Depending upon volume of traffic, climate, state of the support, used splitting granulation and. A., are kg/m< 0.8 to 1.5; 2> effective amount of a flux bitumen bonding agent according to invention with a processing temperature of 130 to 170 DEG C (or cold as Bitumenemulsion) with ramp spraying equipment on the support sprayed. Afterwards this is as einlagig as possible abgesplittet about 1 mm thick bonding agent film with splitting spreading equipment uniform and. Such manufactured surface treatments become released after several rolling transitions immediately for the traffic (speed-limited). After few days and the road for the ordinary traffic is surplus-split cleared away the released. The significant advantages opposite the prior flux bitumen are:

- Small flux oil steam missions with the processing (gangs!)
- Higher safety with the processing due to the high-located flashpoints of the flux oil components according to invention
- Lowest possible environmental pollution by volatile hydrocarbons and/or. by rain water eluierbare ingredients compared with prior bonding agents
- Optimal bitumen compatibility of the flux oils according to invention and thus good resistance to aging of the bonding agent
- Import independence by the possibility of the use more domestic
regenerating vegetable raw materials.

2. Manufacture from cold-mix-good

Depending upon used grain structure of the rock material which can be used 6 to 10% of the Bitumenemulsion according to invention (embodiment C) in a suitable machine for mixing with the rock becomes mixed. In the conclusion phase of mixing emulsion-refractive additions (for example salts, alkalis, acidic ones) can be mixed, thus become achieved that clear water flows off and contaminants of the mixing place by unbroken emulsion remainders assured does not become. Such a manufactured cold-mix-good is storable and cold more processable longer time and loosely on truck is preferably, shipped or in sacks packaged, for repair purposes (impact holes, Künettenverschluss etc.) in the cold season inserted. The particular advantage of the bonding agent according to invention opposite conventional bonding agents is environment-friendliness with the conventional bonding agent

can due to action by rain water environmentaldeleterious, groundwater-endangering mineral oil components be eluiert, with the bonding agent according to invention be become at the most biological complete degradable, innocuous nature oils free. The favourable possibility of the desired secondary hardening of the bonding agent (drying oils) the bottom influence of the atmospheric oxygen is an other significant advantage of the inventive system.

The production of the cold-mix-good also the flux bitumen can become used, as in the embodiment described, whereby 3 to 10 mass % binder phase with 90 to 97 mass % rock-split mixed become.

In accordance with instant invention the among other things subsequent product groups on bitumen basis can be manufactured:
Flux bitumen as well as Bitumenemulsionen as bonding agents for cold mixing good production, for surface treatments, as bonding agents for dredging building methods (Slurry sealing as well as cold layingable thin section covers), Bitumenemulsionen for landscape reason procedures, Bitumenemulsionen as well as flux bitumen as bonding agents for building material recycling procedures. With the latter the made re-installation of bitumen departure material or millinggood as well as other recycling building materials, with or without cement additive. Other products are flux bitumen for impregnation purposes, z. B. as grouts for brick-work dewatering and flux bitumen for pouring work, z. B. to pouring tears and seams in roads.